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Introduction to the John Beard Special Issue

Ralph W. Moss, PhD

My initial reason for suggesting to the editors a special issue of *Integrative Cancer Therapies* on the legacy of John Beard (1858-1924) was simply to pay homage to an underappreciated scientist on the sesquicentenary of his birth (November 11, 2008). For various reasons, Beard was denied a much-deserved Festschrift on his retirement from the University of Edinburgh. One can, therefore, look on this as a long overdue tribute to a great researcher.

People familiar with the field of complementary and alternative cancer treatments have long known the name John Beard. Howard H. Beard (an unrelated American scientist) introduced John Beard's theories on the origins of cancer to America exactly 50 years ago.¹ Another American scientist, Charles Gurchot, PhD, attempted to redact Beard's thinking for modern readers.² Popular books of the 1970s, such as G. Edward Griffin's *World Without Cancer*, were peppered throughout with quotations from the elusive Dr Beard.³ Even Beard's own book, *The Enzyme Treatment of Cancer and Its Scientific Basis* (1911),⁴ was reprinted many times by the Cancer Control Society of Los Angeles, which holds annual conferences promoting the use of nonconventional treatments. Eventually, most people who have investigated the field of integrative cancer treatments have stumbled on this mysterious personage, who grew to have an almost mythic status as founding father of alternative cancer therapy.

But was Beard simply the "king of the quacks," as some have held, or was there indeed something more valuable to be gleaned from his scientific contributions? The main purpose of this special issue is to demonstrate that Beard was an important thinker, who continues to stimulate innovative scientists to do exciting work. The contributions of scholars from 4 countries—Drs Angela Burleigh of Canada, Josef Beuth of Germany, Josef Novak of the United States, and Martin Wald of the Czech Republic—here demonstrate the current relevance of Beard's original ideas around the world.

My task as guest editor was to lay the groundwork for these contributors by putting John Beard and his intellectual progeny into historical context. In the process of doing so, I not only wrote a short biography of the man but also compiled the first comprehensive bibliography of his writing, following his evolution from zoologist to embryologist, studying the genesis and function of various organs (including components of the immune system), and then finally his 20th century contributions to the cancer problem.

As I approached the writing of his biographical profile, this question of who he really was proved unexpectedly difficult to answer. Misstatements and misdocumentation abound. One often finds him referred to as Dr John Beer, the Scottish or Welsh or American physician. (He was in fact an Englishman with a German PhD, not, as often stated, a medical doctor.) A previous biographical sketch identified his birth date as 1857 (not the correct date, November 11, 1858). We are told that he died in 1915, 1919, or 1923 (when the actual date was December 2, 1924). I blush to admit that I myself once described him in print as "a lifelong bachelor, who left no progeny." I now know that this would have come as a surprise to any of his 3 successive wives or to his son, Edgar.

The nature of the cancer controversy in which he was embroiled is also routinely misrepresented. One Internet author, Daniel H. Duffy, DC, has stated that by 1911 there were "forty clinics in London, England curing cancer using crude pancreatic enzymes."⁵ In fact, at the peak of Beard's notoriety, there were probably never 40 clinics administering enzyme therapy around the world, much less curing it in 1 city. By 1911, I do not believe there was a single clinic giving enzyme therapy in London. But that is the way that myths get started, and this "40 London clinics" figure has been enthusiastically repeated at other Web sites.^{6,7} It gives an entirely false impression of the scope of the enzyme therapy movement, and of Beard's influence.

How then can we establish the truth about John Beard? I once wrote that there was "no personal information on him beyond what could be gleaned from his scientific writings." At the time I wrote that (2002), it was the truth. He was neither a fellow of the Royal Society nor a Nobel laureate, the kind of honors that automatically generate interest among biographers and archivists. Indeed,

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although he had his moment of fame in the early 1900s, by the time of his death in 1924 he was largely forgotten, even at his own institution. This great man of science's correspondence, library, meticulous collection of microscopic slides, and so on all seemed to have disappeared without a trace. With the exception of a glancing mention in another student's memoir, the University of Edinburgh has no record or recollection of him.

I once purchased from a British rare book dealer copies of 3 of his articles that were signed "with the author's compliments." With the possible exception of a graduate school application in the dusty archives of a German university, these may be the only specimens of his handwriting still in existence. Even his Edinburgh gravesite was unknown until, by going through various death records, I discovered it in Comely Banks cemetery. I had my niece, a University of Edinburgh student, photograph it for me. (see illustration in *The Life and Times of John Beard*, Pg 243.)

For over a year I have immersed myself in the task of collecting esoteric details on John Beard's life and assembling them in chronological order. At times, this became almost an obsession, as I worked to reconnect events long forgotten by the world of medical history. But I realize that practical readers will have a different question on their minds, namely, whether enzyme therapy actually works in fighting cancer. Is it a near-universal cure, as Beard believed, or is it "voodoo magic," as some modern critics assert?⁸

The articles in this issue will hopefully help readers make their own informed judgments. I shall not try to give a definitive answer to the question, especially in the absence of properly conducted clinical trials. The only such American trial (attempted at Columbia University) collapsed amidst mutual recriminations between the various practitioners. No other American trials are on the horizon.

My personal opinion is that the weight of the evidence, presented in this report and elsewhere, strongly favors the beneficial effect of enzyme supplements in the management of cancer and in inflammatory conditions. How else can one explain the animal experiments, such as those reported here by Wald, showing that enzymes shrink tumors in animals? And what about Beuth's careful observations on the role of enzymes in the treatment of cancer? Novak's laboratory experiments are unraveling some of the mysteries of how enzymes and proenzymes interact with cancer cells. Burleigh has brought Beard's thinking on trophoblasts into the modern world of cancer stem cells. I think it is safe to say that enzymes are a promising nonconventional approach to cancer. In any case, oral enzyme supplements are neither very expensive nor particularly toxic.

But numerous questions still remain. For instance, how can orally ingested enzymes avoid degradation in the alimentary canal, finally to enter the bloodstream? How

can they avoid the abundant inhibitors that are found in the plasma? What is the mechanism by which enzymes attack and kill cancer cells? Do enzymes reduce the inflammation that is thought to promote carcinogenesis? If enzymes are effective, what is the optimal route of administration and the optimal dose for various kinds of cancer?

Such questions cannot be answered in a single laboratory or a single lifetime. They cry out for the formation of a full-scale Institute of Pancreatic Enzyme Therapy. The issues raised by Beard's prescient ideas could certainly occupy several dozen scientists working full time at an institute devoted to this topic alone.

It is one of the anomalies of history that John Beard has never been discovered by mainstream academic science. Recently, a distinguished group of French and Italian scientists published a 20-page scientific paper on the similarities of cancer and trophoblasts.⁹ Amazingly, the name Beard does not appear anywhere in this review article. The senior author wrote to me that she had indeed heard of Beard's name, but had never read his articles. Who knows how much better their excellent work might have been had they connected to the historical roots of their own field?

John Beard was a man ahead of his time. He was codiscoverer of some of the most important biological concepts of our era (such as apoptosis and the cancer stem cell theory). As Burleigh shows, he has now been proven right on the intimate connection, and almost uncanny similarity, between the trophoblastic cells of pregnancy and cancer stem cells. And, based on the studies presented here and elsewhere, he is in the process of being proven right about the overall efficacy of pancreatic enzymes in the treatment of cancer.

That said, Beard was not a saintly person. He definitely had some personality flaws. For instance, he was often vain and egotistical and, in controversies, overvalued his own reasoning, while dismissing that of his opponents. He could be very dogmatic, sometimes substituting a bulldog determination for factual documentation. He was justly called an "armchair investigator," who overestimated the importance of "pure reason" over rigorous experimentation. (His one foray into animal experimentation involved just a few animals and was lamentably inadequate.) And, as any prospect of universal acceptance and acclaim slipped away, he began to sound like the archetypal eccentric, the man with the pet theory to whom no one will listen. One of his students called him "somewhat of a crank"—and this was before he even began articulating his controversial trophoblastic theory of carcinogenesis.

I infer from the carefully worded obituary in *Nature* that at a crucial point in his career his closest colleagues regretted the disappearance of their friend, the rigorous embryologist Beard (the one who was nominated for the 1906 Nobel Prize) and his gradual replacement by Beard

the cancer eccentric. I do not imagine he could have been much fun to be with, either as teacher or friend, especially if one had the temerity to ever disagree with him. His greatest supporter, C. W. Saleeby, MD, who did more to publicize Beard than any other individual, does not even merit a single mention in Beard's 1911 book.

So I have no wish to establish a cult of personality around Beard. He was all too human. But I still think that Beard was a brilliant man, who was motivated by a genuine wish to help suffering humanity. He was a "good and faithful servant of mankind," to quote his own estimation of his teacher, Prof August Weismann. Some of his colleagues desperately wanted him to stick to his research into comparative ichthyology. But as important as understanding the sensory organs of the common skate may be, it cannot compare with the urgent need to understand and treat one of our most dreaded diseases. In his day, as now, a century later, humanity urgently needed more effective and less toxic treatments for cancer. And Beard's understanding was not an abandonment of embryology but an extension of its insights into the field of human cancer. Nowadays, even the director of the National Cancer Institute calls for an integration of embryology and oncology.¹⁰ But in Beard's day this was scandalous academic fence jumping.

Beard's sin, ultimately, was that he abandoned the comfortable groves of academe for the pitted battlefield of cancer medicine. He certainly suffered for this sin, not least of all in the damage to his carefully nurtured professional reputation. All future academic laurels—including a much-desired full professorship—were now beyond his grasp.

I wish to mention one other thing—Beard's courage. For all his petty faults, Beard was certainly a brave man. His intellectual opponents all had tremendous resources at their disposal. The idea of this lone researcher, John Beard, facing the monolithic might of the Imperial Cancer Research Fund (not to mention its august patron, the future King George V) evokes images of Don Quixote tilting at windmills. But with all his weaknesses and

limitations, he came closer than his opponents to understanding the fundamental mechanisms underpinning cancer's characteristic invasiveness.

It has taken us a century to realize this, and the implications of his theory are still being worked out. Perhaps with this special issue, the vindication of John Beard's thinking on cancer will enter a new phase. I hope that the reader will enjoy this special John Beard issue as much as I, and my collaborators, have enjoyed working on it, and will carry away good feelings toward a memorable thinker and scientist on the 150th anniversary of his birth.

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